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STRATEGY FOR ADJUSTING THE 1980 CENSUS  
FOR UNDERCOUNTA REPORT TO THE CENSUS BUREAU  
PREPARED AT THE REQUEST OF  
THE SPEAKER  
THOMAS P. O'NEILL, JR.Alexander Ganz  
Research Director and  
Official Census Local Review Liaison  
Boston Redevelopment Authority

October 31, 1980

Kevin H. White, Mayor  
City of BostonRobert J. Ryan, Director  
Boston Redevelopment Authority



THOMAS P. O'NEILL, JR.

MASSACHUSETTS

DEMOCRAT  
THE SPEAKER

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(202) 225-5111

**Congress of the United States  
House of Representatives**

October 31, 1980

Mr. Vincent P. Barabba  
Director of the Census  
U.S. Department of Commerce  
Bureau of the Census  
Washington, D.C. 20233

Dear Mr. Barabba:

This is in reference to my letter to you of October 15th, and my request to Mr. Alexander Ganz to carefully review your report Census Undercount Adjustment; Basis for Decision.

I am concerned to hear that the Census Bureau believes it missed so few people in the 1980 Census that there possibly is no need for a final figure adjustment.

Enclosed you will find the report that I asked Mr. Ganz to prepare, entitled "Strategy for Adjusting the 1980 Census for Undercount", in response to your report on the undercount adjustment. I trust this information will be useful when an adjustment is made and I look forward to hearing your comments on Mr. Ganz's data.

With every good wish,

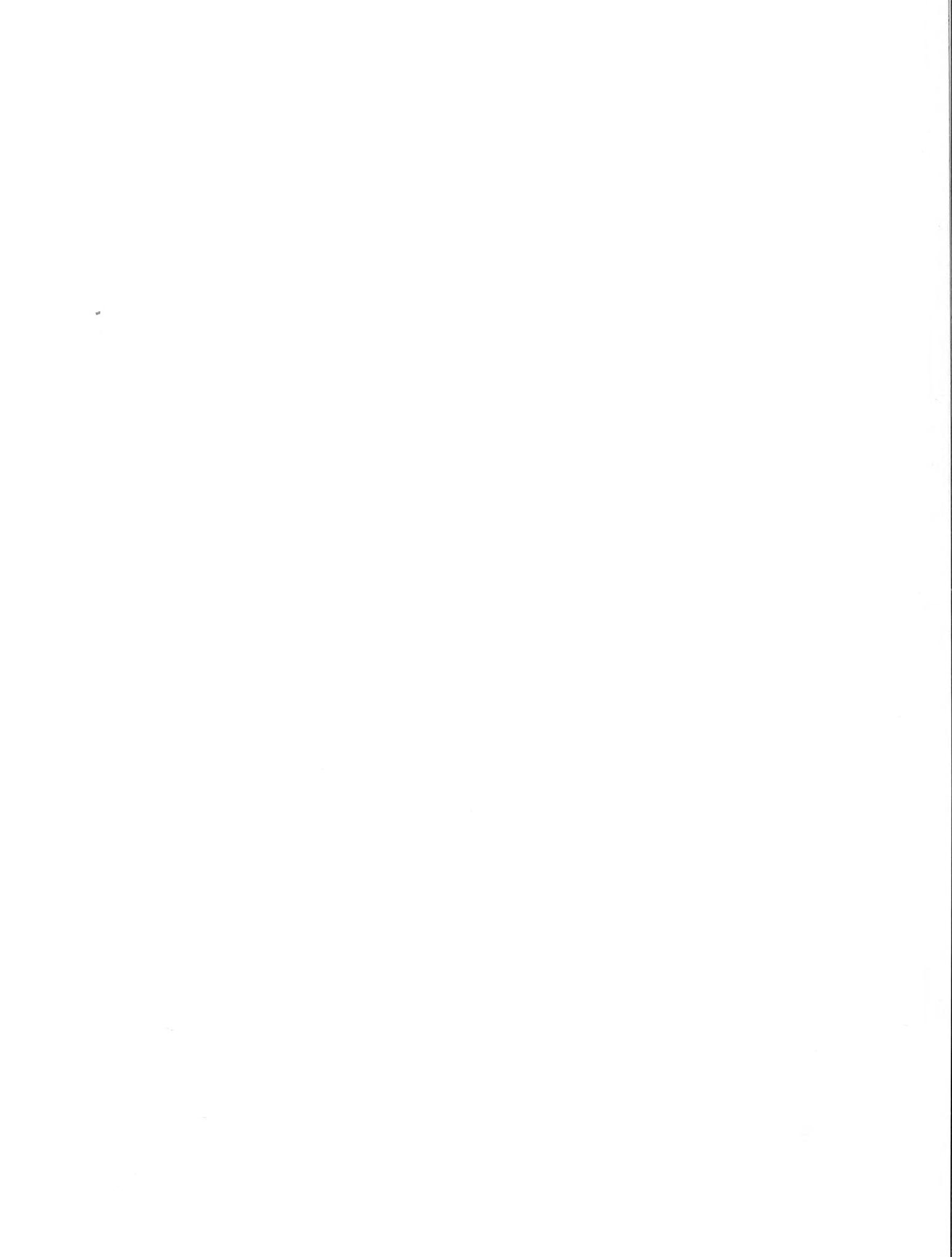
Sincerely,

*Thomas P. O'Neill, Jr.*

Thomas P. O'Neill, Jr.  
The Speaker

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STRATEGY FOR ADJUSTING THE 1980 CENSUS  
FOR UNDERCOUNT

A REPORT TO THE CENSUS BUREAU  
PREPARED AT THE REQUEST OF  
THE SPEAKER  
THOMAS P. O'NEILL, JR.

Alexander Ganz  
Research Director and  
Official Census Local Review Liaison  
Boston Redevelopment Authority

October 31, 1980

Kevin H. White, Mayor  
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# Boston Redevelopment Authority

October 30, 1980

Thomas P. O'Neill, Jr.  
The Speaker  
U.S. House of Representatives  
Washington, D.C. 20515

Dear Mr. Speaker:

I am pleased to respond to your request for review and suggestions on the Census Bureau's report, "Census Undercount Adjustment: Basis for Decision", which I have studied carefully in the light of our own experience and information on Boston, as well as the documentation on what the Census Bureau believes it is now capable of doing.

Our review, which is attached, proposes a focus on a specific strategy for adjustment of the 1980 Census, drawing on the plans and capabilities of the Census Bureau evinced by the document under study. While the adjustment of the 1980 Census has many parts, and will be complex if all information sources are taken advantage of, a major part of the work to be done centers on the principal origin of the undercount. Our proposal flows from the implications of our just completed analysis of the preliminary 1980 Census population numbers for Boston released earlier this month, and the noteworthy documentation of the admirably open review procedure undertaken by the Census Bureau on how to deal with the undercoverage.\*

Between July and October, 1980, the Census Bureau substantially narrowed the undercount of Boston's population. Our examination of the new numbers reveals that at least 50,000 of the estimated undercount of 80,000, equal to sixty percent, stems from failure to count entire households--the undercoverage of household size. This finding of the concentration of the undercount in enumerated but incompletely reported households is echoed in the observations of a number of eminent participants in the Census Bureau undercount review process, including Courtenay M. Slater.\*\* Furthermore, in the case of Boston,

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\* U.S. Department of Commerce, Bureau of the Census, Conference on Census Undercount; Proceedings of the 1980 Conference, Washington, D.C., issued July 1980.

\*\* Courtenay M. Slater, Chief Economist, U.S. Department of Commerce, "The Impact of Census Undercoverage on Federal Programs", Conference on Census Undercount, op. cit.

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Speaker Thomas P. O'Neill, Jr.

October 30, 1980

almost ninety percent of the total undercount centers in neighborhoods of minority population and young people, and more than ninety percent of the undercoverage of all of the members of a household also centers in these neighborhoods. For the nation as a whole, the Census Bureau had found, as you know, that the incidence of undercount of minorities was inordinately large in 1970.

As Ms. Slater went on to note, "presumably one could make some sort of imputations about the characteristics of these households". More than that, the Census Bureau's Current Population Survey of 71,000 households each month provides detailed information on size and other characteristics of households, with specific data on the thirty largest metropolitan areas and their central cities, making up more than one-third of the Nation's population. Two of the relevant Census publications which emerge from this process, and present information on household characteristics and size are: U.S. Bureau of the Census, Social and Economic Characteristics of the Metropolitan and Non-Metropolitan Population: 1977 and 1970; Ibid., Household and Family Characteristics: March 1977.

For the nation's large cities and metropolitan areas, it would be possible to introduce an address specific population adjustment factor, therefore. Made in this way, the adjustment would be part of the "substitution-close-out" process similar to that used by the Census Bureau to add five million persons to the Census rolls in 1970. Carried out in this way, the address specific adjustment would yield a count perfectly eligible for apportionment, (and other uses), even under the narrowest criteria.

There is reason to believe that a major part of the problem of undercount in 1980 is concentrated in large cities and metro areas, and that a strategy that centers on adjustment here, consonant with the use of the Census count for apportionment, is the way to go. This is where the hard-to-count population--minorities, young people, aliens--live. This population has become a larger share of that in the nation's cities since 1970, and the adjustment for undercount, therefore, may be even more urgent now than then. The proposed focus on address specific adjustment of household size in large cities and metropolitan areas, would be but one key aspect that the Census Bureau should be encouraged to encompass in the adjustment process. Since at least a year might be required for this process, according to the Census Bureau schedule, "preliminary" numbers might be reported to the President by December 31, 1980. With the next Congressional elections two years away, there would be time then to report population numbers for apportionment.

In this light, the response of the Census Bureau to systematically study the question of undercount and to undertake an adjustment process in line with the recommendations of the National Academy of Sciences and the mandate of the Chief Economist of the U.S. Department of Commerce, are much to be commended. The Census Bureau has the knowledge, talent and capability, as is amply demonstrated by the presentations at the "Conference on Census Undercount", and the report under review, "Census Undercount Adjustment: Basis for Decision".



Speaker Thomas P. O'Neill, Jr.

October 30, 1980

They have shown that they are well able to measure the undercount at the national level, and, over a period of years, to adjust the detailed data down to the local level.

The shortfall of the Census Bureau was the absence of a theory of the origin of the undercount, and a strategy based on that theory that would enable them to focus their effort. Hopefully, the Boston experience and documentation, and the insights of the Conference participants, especially Ms. Courtenay Slater, may fill that role.

The document circulated for comment, Proceedings of the Second Census Undercount Workshop, September 2-5, 1980; Census Undercount: Basis for Decision, represents an extraordinary advance. The Census Bureau should proceed with the assumptions therein presented. I would demur on the following aspect only:

The Census Bureau has the capability of introducing adjustments (principally for household size) for the States, and the 30 largest metro areas and central cities, by late 1981, and at the address specific level, for the most part, and it should proceed as planned. These adjustments can be incorporated in the detailed count as part of the established "substitution-close-out" procedure used in the 1970 Census. The adjusted count should then be used for apportionment in early 1982, in time for the Congressional elections of that year. As Congressman Robert Garcia noted in his presentation at the Conference on Census Undercount, "Adjustment based on a more comprehensive methodology would be no different logically from the 1970 imputations. The distinction would be that in this case more comprehensive information would be used."

The review, which follows, is presented in four parts. An analysis of the socio-economic changes in the nation (and in Boston) which yielded the setting for the undercount is provided. An examination of the new (October) population numbers for Boston and the characteristics of the undercount is undertaken. Some significant aspects of the Conference on Census Undercount held earlier this year, are noted. Suggestions on the document at hand, Census Undercount: Basis for Decision, are made.

I appreciate the opportunity to address the question of adjustment for the Census undercount.

Sincerely yours,



Alexander Ganz  
Research Director and  
Official Census Local Review Liaison



# Boston Redevelopment Authority

October 31, 1980

Vincent P. Barabba, Director  
U.S. Department of Commerce  
Bureau of the Census  
Washington, D.C. 20233

Dear Mr. Barabba:

I am pleased to have the opportunity extended to me by the request of the Speaker, Thomas P. O'Neill, Jr., to comment on the extraordinary report you have presented, "Census Undercount Adjustment: Basis for Decision".

The notable capabilities of the Census Bureau to carry out the adjustment for undercount, and the open process of discussion of how the adjustment might be made, are amply evidenced by the report under review as well as the earlier publication of the Proceedings of the 1980 Conference on Census Undercount. The Census Bureau has laid all of its cards on the table and there are good hands.

Our message is to go ahead with the adjustment process, in accordance with the assumptions you have presented, utilizing all of the information and analytic tools available, however complex. You are well counselled to avoid the synthetic approach of arbitrarily allocating to all units of government a set of adjustment margins determined at the national level, for this would not deal properly with how the undercount comes about.

We believe you will find that our Boston experience will confirm the judgement of several of your Conference panelists that the undercount centers largely in enumerated but undercovered households, and is mainly concentrated in neighborhoods of hard-to-cover minorities, young people, and aliens in large cities and metropolitan areas. This circumstance lends itself to the formulation of a strategy for utilizing the monthly sample of the Current Population Survey to generate address-specific adjustments of household size, by race and other household characteristics. Done in this way, the adjustment could have the same character as the "substitution-close-out" procedure which the Census Bureau utilizes, and which was used to add five million persons to the Census count in 1970. An adjustment process carried out in this way would be consonant with the "head-count" requirements for apportionment. A preliminary report on population to the President by December 31, 1980 could be replaced



Vincent P. Barabba

October 30, 1980

by adjusted census numbers in time for reapportionment and the Congressional election of 1982.

We hope you will find the information and comments presented in this report useful.

Sincerely yours,



Alexander Ganz,  
Research Director and  
Official Census Local Review Liaison

/c  
enclosures



## ACKNOWLEDGMENTS

In the few days available, the preparation of this report benefited from the work and counsel of several key persons whose role is gratefully acknowledged. Margaret C. O'Brien, staff demographer, reviewed the recent literature on adjusting for undercount. Karen Buglass and Susan Jaster generated cross-tabulations of our Boston Household Survey. Kevin Peterson of the Speaker's office helped unearth 1980 Census preliminary population numbers by census tract district. Judith Cohen, director of data user services in the Boston Regional Office of the Census Bureau, marshalled hard-to-come-by Census reports with much good will. Catherine Carroll prepared the tables and manuscript.



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LETTER TO THE SPEAKER, THOMAS P. O'NEILL, JR.

LETTER TO VINCENT P. BARABBA, DIRECTOR OF THE CENSUS, TO THOMAS P. O'NEILL, JR.



## I. SOCIO-ECONOMIC CHANGES IN THE NATION (AND IN BOSTON), SINCE 1970; BACKGROUND TO THE UNDERCOUNT

Broad social and economic changes in the 1970s exacerbated the potential for undercount in the nation's large cities. There was a notable growth and concentration of the hard-to-count population--minorities and young adults. Minorities were suspicious of Authority, and the young were less interested, as shown in their lower voter participation record. As household size diminished, with the young and old increasingly able to make it on their own, and as the number of two worker households increased, the problem of finding a person "at home" in some neighborhoods of our large cities was magnified. Those who chose not to respond to the mail-out, mail-back census were more elusive than in earlier times.

The 1970s were a time of growth of the minority and the young adult population in the nation's cities and metropolitan areas. For the nation as a whole, the increase in the white population was three times that of blacks and hispanics. But in the central cities, which make up thirty percent of the country's people, the black and hispanic population rose, while the white population fell. See Table I. There was also an increase in the number of 18 to 34 year olds in the central cities, while total central city population declined.

Two phenomena were involved. There was the higher birth rate and in-migration of minorities. And there was the bulge of the postwar babies entering their late twenties and early thirties.

In Boston, the minority share of the population continued to increase, though at a diminished rate, from five percent in 1950, to ten percent in 1960, 20. percent in 1970, and 31 percent in 1980. See Table II. By 1980,



Table I

CHANGE IN WHITE AND BLACK POPULATION IN CENTRAL CITIES, 1970-77;  
AND IN HISPANIC POPULATION, 1974-77  
(Thousands)

		<u>1977</u>	<u>1970</u>	<u>Numerical Change 1970-77</u>	<u>Percent Change, 1970-77</u>
White Population					
All Central Cities		44,951	48,909	-3,958	-8.1%
In Metro Areas of 1 Million & Over		21,939	25,007	-3,068	-12.3
In Metro Areas of Less than 1 Million		23,012	23,903	-891	-3.7
Black Population					
All Central Cities		13,451	12,909	542	4.2
In Metro Areas of 1 Million and Over		8,863	8,664	199	2.3
In Metro Areas of Less than 1 Million		4,588	4,245	343	8.1
Hispanic Families					
All Central Cities		5,570	5,316	254	4.8
In Metro Areas of 1 million and Over		3,513	3,469	44	1.3
In Metro Areas of Less than 1 Million		2,057	1,847	210	11.4

Source: U.S. Bureau of the Census, Social and Economic Characteristics of the Metropolitan and Non-Metropolitan Population, 1977 and 1970, Table F.



Table II

 MINORITY POPULATION BY NEIGHBORHOOD  
 CITY OF BOSTON: 1950, 1960, 1970, 1980

<u>Neighborhood</u>	<u>Minorities as a Proportion of Total Population</u>			
	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>
East Boston	0%*	0%*	1%	3%
Charlestown	1	1	1	2
South Boston	0 *	0 *	2	4
Central	5	10	9	22
Back Bay/Beacon Hill	1	2	4	6
South End	32	42	53	60
Fenway/Kenmore	3	9	9	35
Allston/Brighton	1	1	4	21
Jamaica Plain	1	5	16	47
Roxbury	15	44	76	92
North Dorchester	0 *	3	13	42
South Dorchester	0 *	0 *	10	25
Mattapan	0 *	1	42	89
Roslindale	0 *	1	3	3
West Roxbury	0 *	0 *	1	0 *
Hyde Park	0 *	0 *	1	12
BOSTON	5%	10%	18%**	31%

\* less than 0.5% of the population

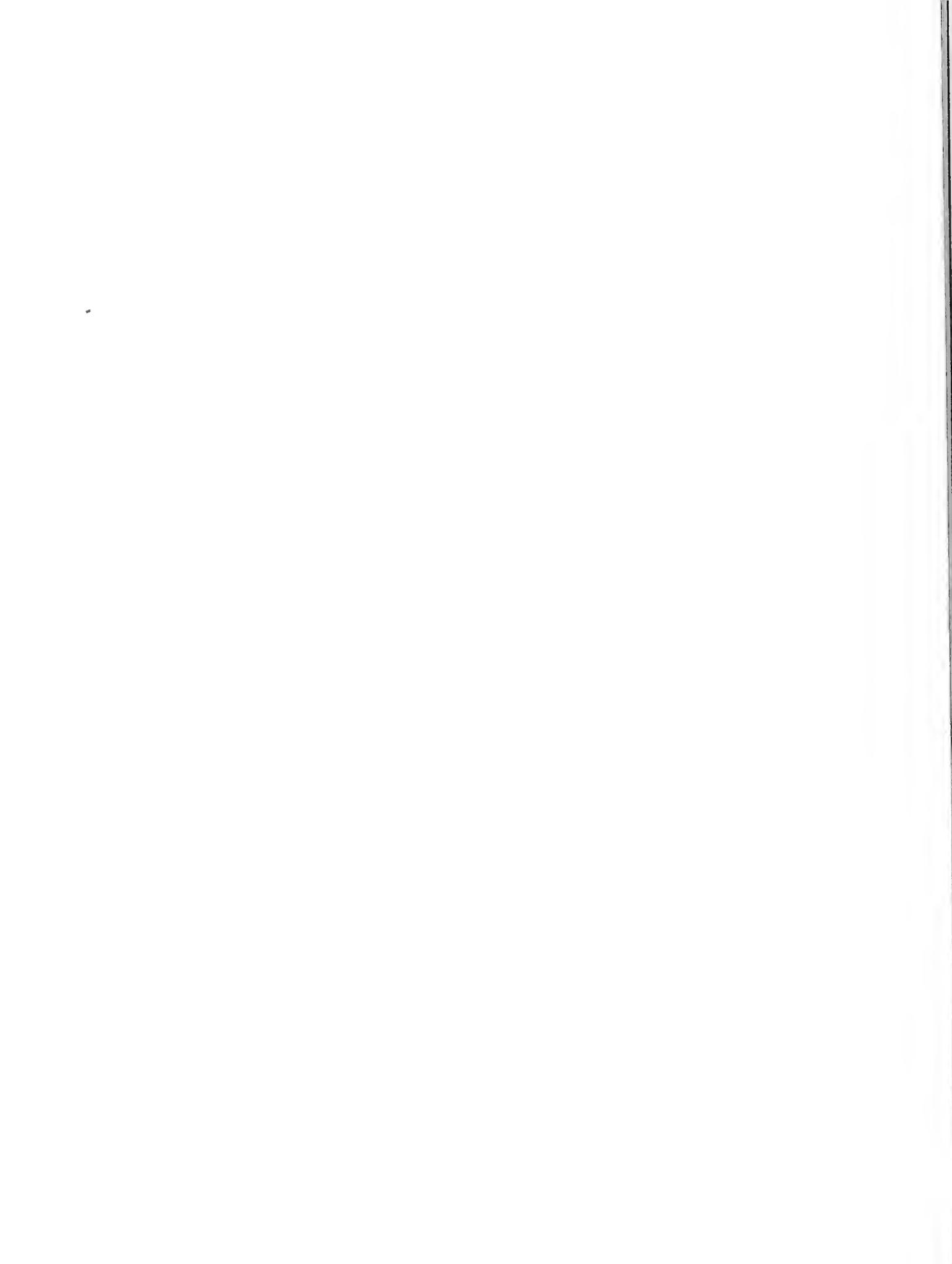
\*\* does not include estimated 2% Hispanics

Note: Minorities include Blacks, Hispanics, Orientals, American Indians.  
 Percentages rounded to nearest integer.

1980 Based on 2,623 observations (weighted).

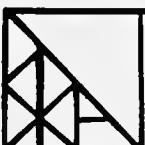
Sources: 1980: Boston Redevelopment Authority Household Survey,  
 conducted by Center for Survey Research, 1980.

1950-1970: U.S. Census of Population and Housing, 1950, 1960, 1970.





1	EAST BOSTON	9	JAMAICA PLAIN
2	CHARLESTOWN	10	ROXBURY
3	SOUTH BOSTON	11A	DORCHESTER (Uphams Corner)
4	CENTRAL	11B	DORCHESTER (Fields Corner)
5	BACK BAY/BEACON HILL	12	ROSLINDALE
6	SOUTH END	13	WEST ROXBURY
7	FENWAY/KENMORE	14	HYDE PARK
8	ALLSTON/BRIGHTON	15	MATTAPAN/FRANKLIN FIELD



PLANNING DISTRICTS, 1970  
Boston, MA



nine of Boston's sixteen neighborhoods were more than one-fifth minority, and five were over two-fifths. As of 1980, Boston's population 69 percent white, 21 percent black, 6 percent hispanic, and 5 percent oriental, and other. See Table III.

There was also a notable change in the age composition of Boston's population. Boston's 25 to 34 year olds increased their share of the City's population from 12 percent, in 1970, to 20 percent, in 1980, with large concentrations in Allston-Brighton and Back Bay-Beacon Hill.

The 1980 Census appears to have done well in identifying dwellings. But it did less well in counting all of the inhabitants of these dwellings. For the nation as a whole, and its large cities, household size was slenderizing, for the reasons noted above. See Table IV. But the Boston case, which provided an opportunity to match 1970-80 trends in household size as shown in the Census count and as measured in a representative household survey, demonstrates the failure of the Census to count all of the persons in a household.

Boston's 1970 Census had reported 2.8 persons per household for the City as a whole--an average made up of a range that extended from 1.6 in Back Bay-Fenway and Beacon Hill-West End to 3.3 in Dorchester and Hyde Park. See Table V. The 1980 representative household survey carried out by the Center for Survey Research showed a city-wide decline in household size to 2.5, for a net decennial reduction of 0.3 persons per household. This would appear to be in line with the 1970-80 national urban trend as reported by the Current Population Survey of the Census Bureau noted earlier.



Table III

## THE RACIAL COMPOSITION OF BOSTON'S NEIGHBORHOODS: 1980

Neighborhood	White	Black	Hispanic	Oriental	Indian	Portuguese/ Cape Verdean	Other	Total <sup>+</sup>
East Boston	97%	0%	3%	0%	0%	0%	0%	100%
Charlestown	98	0	2	0	0	0	0	100
South Boston	96	0	3	2	0	0	1	100
Central	78	1	2	18	0	0	0	100
Back Bay/Beacon Hill	94	1	2	2	0	0	1	100
South End	40	25	14	21	0	0	0	100
Fenway/Kenmore	65	34	0	2	0	0	0	100
Allston/Brighton	79	3	4	13	0*	0	1	100
Jamaica Plain/ Parker Hill	53	17	25	4	1	0	2	100
Roxbury	8	78	9	0	2	4	0	100
North Dorchester	58	26	13	0	0	0	4	100
Roslindale	97	1	2	1	0	0	0	100
West Roxbury	100	0	0*	0	0	0	0	100
Hyde Park	88	7	3	1	0	0	0	100
Mattapan	11	81	6	0	0	1	0	100
South Dorchester	<u>75</u>	<u>18</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>100</u>
Total City	69%	21%	6%	4%	0%*	0%*	1%	100%

\* Less than 0.5% of the population belongs to this racial group.

+ May not total exactly due to rounding.

Source: Study of Boston's Neighborhoods, Boston Household Survey,  
Center for Survey Research, University of Massachusetts, June 1980



## TRENDS IN FAMILY SIZE IN THE NATION'S CITIES, 1970-77

		<u>1970</u>	<u>1977</u>	<u>Change 1970 to 1977</u>
Mean Size of Black Families in Central Cities				
All Central Cities		3.96	3.69	-0.27
In Metro Areas of 1 Million and Over		3.90	3.68	-0.22
In Metro Areas of Less than 1 Million		4.08	3.70	-0.38
Mean Size of White Families in Central Cities				
All Central Cities		3.35	3.18	-0.17
In Metro Areas of 1 Million and Over		3.29	3.15	-0.14
In Metro Areas of Less than 1 Million		3.42	3.21	-0.21

Source: U.S. Bureau of the Census, Social and Economic Characteristics of the Metropolitan and Non-Metropolitan Population, 1977 and 1970, Table 7.



COMPARISON OF HOUSEHOLD SIZE IN BOSTON,  
AS MEASURED BY THE CENSUS IN 1970 AND 1980 AND THE  
CENTER FOR SURVEY RESEARCH 1980

Census Tract Districts	(1) 1970 U.S. Census	(2) 1980 Based on Preliminary Population Numbers	(3) 1980 (Oct. 2, 1980)	(4) 1970 to 1980 Change	(5) 1970 to 1980 Center for Survey Research 1980
	Center For Survey Research 1980	Center For Survey Research 1980	U.S. Census 1980	U.S. Census 1980	U.S. Census 1980
Allston-Brighton	2.4	2.2	2.3	-0.2	-0.1
Back Bay-Fenway	1.6	1.4	1.6	-0.2	-
Beacon Hill-West End	1.6	1.7	1.6	+0.1	-
Waterfront-North End	2.5	1.9	1.6	-0.6	-0.9
Charlestown	3.1	2.5	2.4	-0.6	-0.7
East Boston	3.0	2.5	2.5	-0.5	-0.5
South Boston*	2.8	2.3	2.5	-0.5	-0.3
South End	2.1	2.1	2.3	-	+0.2
Mission Hill-Roxbury	2.9	2.9	2.6	-	-0.3
Dorchester	3.3	2.4	3.2	-0.9	-0.1
Neponset-Mattapan	3.2	2.8	3.4	-0.4	+0.2
Roslindale	3.2	2.8	2.7	-0.4	-0.5
Jamaica Plain	2.9	2.4	2.4	-0.5	-0.5
West Roxbury	3.1	2.7	2.6	-0.4	-0.5
Hyde Park	3.3	2.7	2.7	-0.6	-0.6
City of Boston	2.8	2.3	2.5	-0.5	-0.3

\* Includes Harbor Islands.

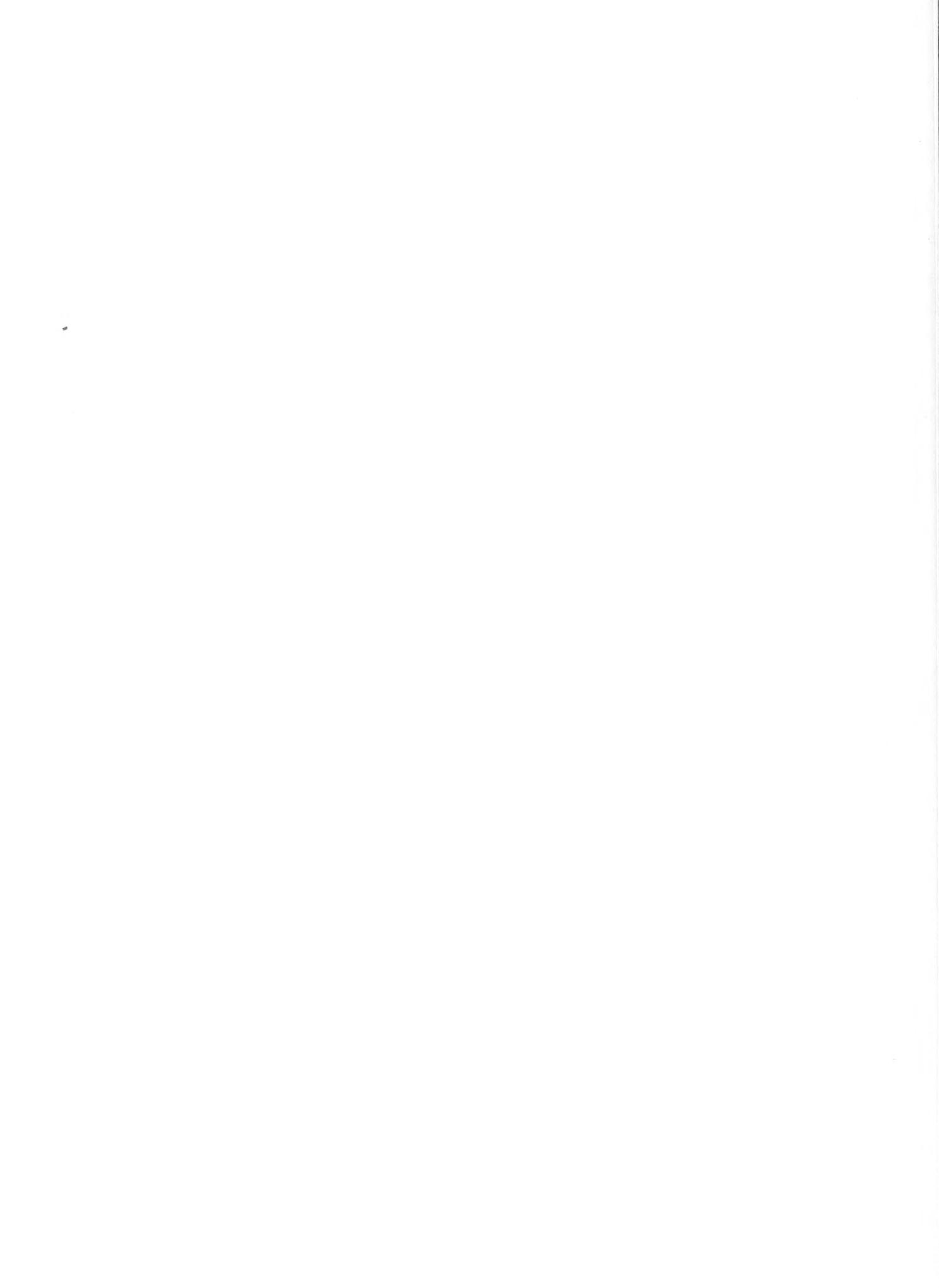
Sources: Col.1-U.S. Bureau of the Census, 1970 Census of Population and Housing.

Col.2-U.S. Bureau of the Census, 1980 Preliminary Population and Housing Numbers (Oct. 1980); see Table 2.

Col.3-Boston Redevelopment Authority Household Survey conducted by the Center for Survey Research of the University of Massachusetts and the Joint Center for Urban Studies of MIT and Harvard; see Table 2.

Col.4-Col.1 minus Col.2.

Col.5-Col.1 minus Col.3.



The Boston 1980 preliminary census numbers, however, show a fall by at least 0.5 persons per household. The difference represents some 50,000 people.

The potential for systematically correcting this census shortfall is amply illustrated in the detail available on household size as shown in a table based on the Center for Survey Research 1980 representative household survey for Boston. See Table VI. This table replicates the kind of information that is obtained, for the nation as a whole, the states, and the thirty largest metropolitan areas and their central cities, in the 71,000 household sample of the Current Population Survey of the Census Bureau and available for use for the address specific adjustment of the undercount in a way consistent with the criteria for apportionment.



Table VI

Percent Distribution of Households by Size, by Neighborhood, 1980;  
 Persons Per Household 1970-1980 Compared

Neighborhood	Total	Number of Persons									Persons Per Household	Change 1970-1980
		1	2	3	4	5	6	7	8	9		
East Boston	100%	30%	33%	13%	13%	6%	6%	0%	0%	0%	2.5	3.0
Charlestown	100	41	30	7	11	4	2	1	4	0	2.4	3.1
South Boston	100	34	31	16	5	5	4	0	0	0	2.5	2.8
Central	100	58	29	5	6	0	0	1	0	0	1.6	2.1
Back Bay/BH	100	60	35	4	1	0	0	0	0	0	1.5	1.6
South End	100	39	25	19	6	6	4	0	1	0	2.3	2.2
Fenway/Kenmore	100	59	34	0	2	2	0	0	0	2	1.7	1.6
Allston/Brighton	100	42	28	9	9	4	7	1	0	0	2.3	2.4
Jamaica Plain	100	26	36	18	13	4	3	0	0	0	2.4	2.8
Roxbury	100	31	23	21	11	9	4	2	0	0	2.6	3.1
No. Dorchester	100	17	27	15	15	13	4	8	2	0	3.4	3.2
Roslindale	100	24	37	14	14	3	3	4	2	0	2.7	3.1
West Roxbury	100	28	36	11	9	9	4	2	1	0	2.6	3.1
Hyde Park	100	27	34	11	13	7	5	0	2	0	2.7	3.3
Mattapan	100	12	20	33	12	13	7	3	2	0	3.4	3.2
So. Dorchester	100	24	24	12	22	7	3	2	2	1	1/2	3.1
Boston	100	34	30	13	11	6	4	2	1	0	2.5	2.8

Based on 1150 observations (weighted).

Sources: Boston Redevelopment Authority Household Survey, conducted by  
 Center for Survey Research, 1980.

U.S. Bureau of the Census, 1970 Census of Population.



## II. THE NATURE OF THE UNDERCOUNT IN BOSTON; ANALYSIS OF THE PRELIMINARY 1980 CENSUS POPULATION NUMBERS

Between July and October 1980 the Boston Regional Census Office mounted a heroic effort and reduced the estimated undercount by almost half. An analysis of the new numbers considerably sharpens our insight into the nature of the undercount, revealing an extraordinary concentration (over 90 percent) in neighborhoods of minorities and young adults, and in the failure to count all of the persons in a household (60 percent).

The undercount fell from 140,000 in July to 80,000 in October, and Boston's 1980 population was raised from the unofficial working number of 504,046 to a preliminary count of 562,118. It would appear that the Boston Regional Office made little use of the very substantial amount of information provided.\* The Boston 1980 Police Census of the Adult Population provided had contained a list of 440,000 adults' names at addresses, all arranged by enumeration district, block and census tract. This included an estimated 82,000 more adults than had been counted in the unofficial working numbers. The 1980 Boston Household Survey had presented information on household size, vacancy rates, and age profile. The Boston Regional Census Office did well in the housing count, with an estimated shortfall of 4 percent, and also produced a good coverage of the group quarter population. Apparently most of the households (but not all their members) in the identified but unenumerated housing had been counted.

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\* Boston Redevelopment Authority Research Department, The Boston 1980 Unofficial Working Numbers; An Incomplete Census; The Undercount and Its Solution; Boston's Official Local Review Response to the Census Bureau, July 29, 1980.



The analysis, and related tables, based on the October preliminary population numbers, here presented, have a less elegant base than we would have liked. In contrast to the July numbers, no information was provided on housing by census tract districts, on vacancy rates, or on household size, thereby requiring certain arbitrary assumptions which will be described. These were made, however, in a way which presents the minimum undercount due to household size factor (60 percent). The conclusions are clear and absolutely valid.

Our review of the October preliminary 1980 population numbers for Boston show a total undercount of more than 80,000 people made up of a short count of 50,000 members of households (60 percent), missing 8,500 dwelling units and their occupants (22 percent), and counting an estimated 4,490 occupied housing units vacant. See Table 1. The undercount centers in neighborhoods of young adults, Allston-Brighton, Back Bay-Fenway, and Beacon Hill-West End (20 percent), and of minorities, South End, Roxbury, Dorchester and Mattapan (67 percent).

The apparent 1980 preliminary census count of household size of 2.35 compares with the Center for Survey Research finding of 2.47. See Table 2. The difference represents a miss of 50,130 people in households, and this shortfall is concentrated in neighborhoods of young adults (12 percent) and minorities (81 percent). To calculate the 1980 Census implications for households and household size, it was necessary to incorporate information on the group quarters population, use estimates of vacant housing, and allocate the additional 1 percent of housing reported over the July count. For group quarters population, the Boston Regional Census Office revision of



Table 1

BOSTON'S 1980 POPULATION; SUMMARY OF COMPONENTS OF THE UNDERCOUNT							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Preliminary Census Population Numbers (Oct. 1980)	Population Undercount Due to Household Size Factor	Population In Missed Housing Units	Population In Occupied Housing Counted Vacant	Sum of Cols. 2 Through 4	Adjusted 1980 Census Population Estimate, Boston	Redevelopment Authority	Household Size Factor As a Percent Of Total Undercount
Allston-Brighton	65,000	2,475	1,470	3,945	69,048	4,048	42%
Back Bay-Fenway	47,000	3,466	5,219	1,334	10,019	57,279	10,279
Beacon Hill-West End	15,000	-	2,096	172	2,268	17,327	2,327
Waterfront-North End	12,000	-	-	61	61	12,063	63
Charlestown	13,400	-	-	-	13,400	-	-
East Boston	32,000	514	-	750	1,264	33,297	1,297
South Boston*	30,072	2,793	231	784	3,808	33,979	3,907
South End	29,400	3,741	-	-	3,741	33,238	3,838
Mission Hill-Boxbury	62,709	-	4,724	4,271	8,995	71,938	9,229
Dorchester	70,750	24,923	-	403	25,326	96,763	26,013
Neponset-Mattapan	61,797	12,098	2,218	840	15,156	77,347	15,550
Roslindale	33,287	-	544	828	1,372	34,695	1,408
Jamaica Plain	27,790	-	465	159	624	28,430	640
West Roxbury	29,465	-	2,695	95	2,780	32,317	2,852
Hyde Park	32,448	120	-	8	128	32,579	131
<b>City of Boston</b>	<b>562,118</b>	<b>50,130</b>	<b>18,182</b>	<b>11,175</b>	<b>79,487</b>	<b>643,700</b>	<b>81,582</b>

\* Includes Harbor Islands.

Sources: Col.1 - U.S. Bureau of the Census

Col.2 - See Table 2, Col. 9.

Col.3 - See Table 3, Col. 7.

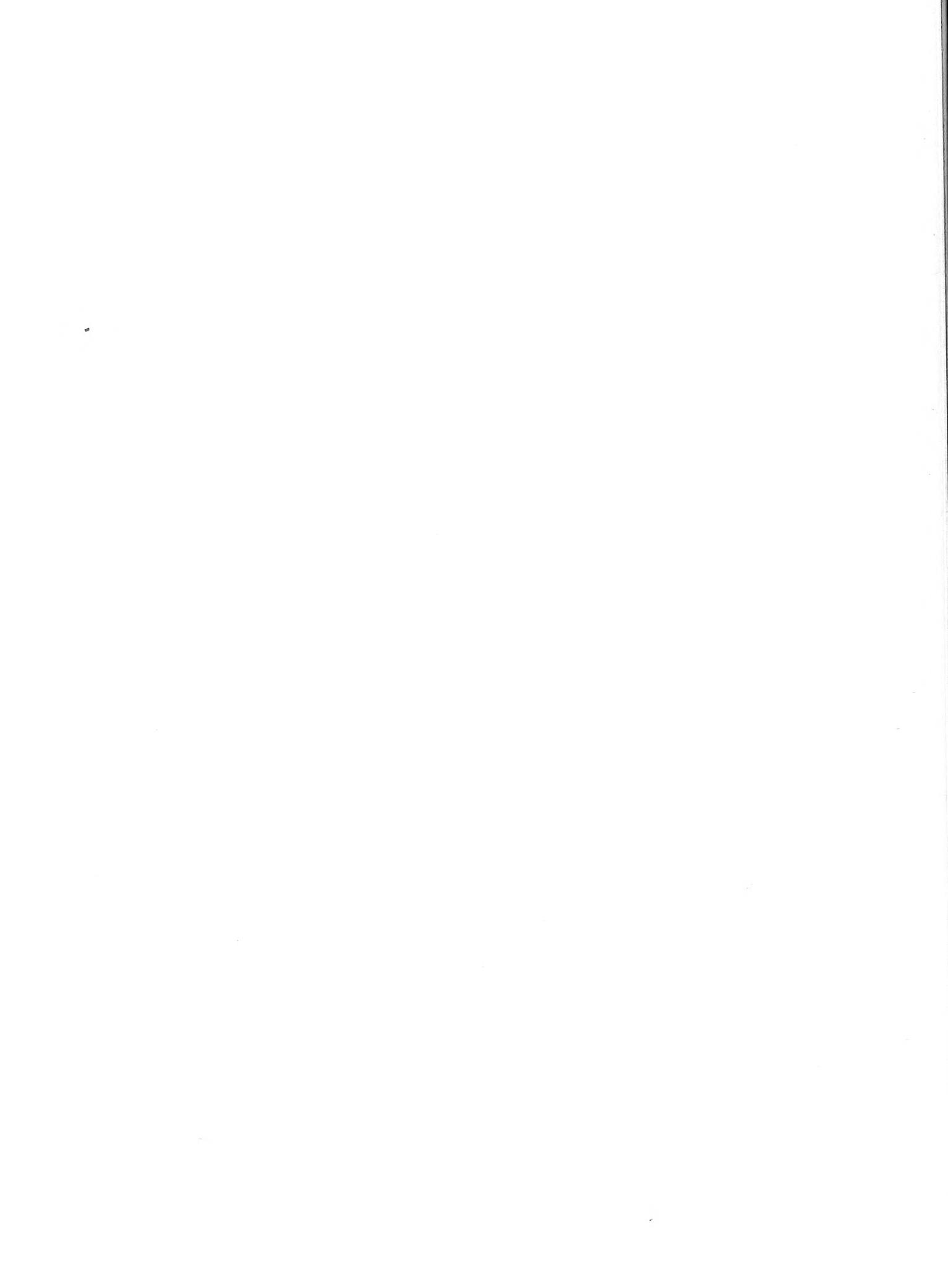
Col.4 - See Table 4, Col. 8.

Col.5 - Sum of Cols. 2,3, and 4.

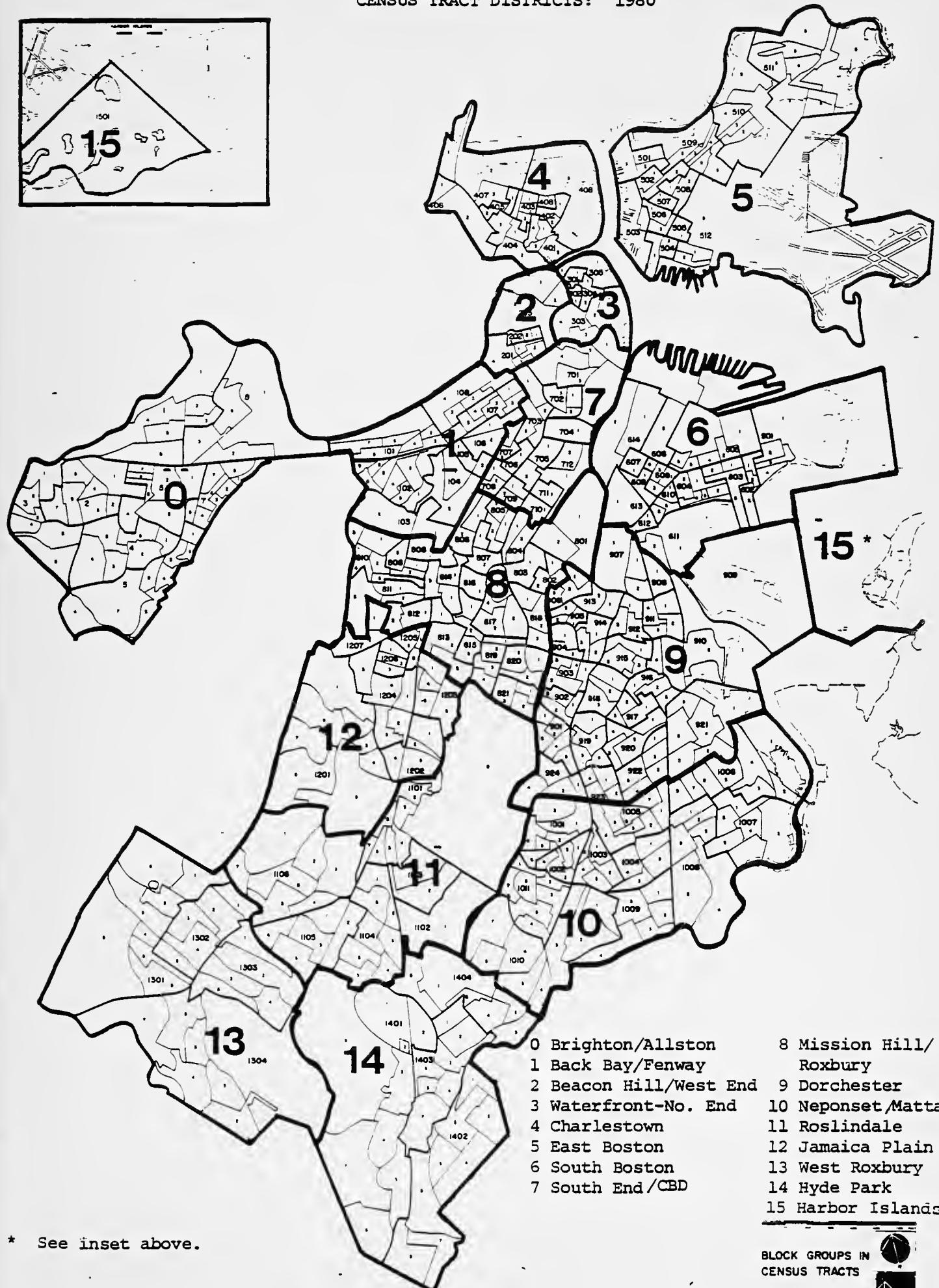
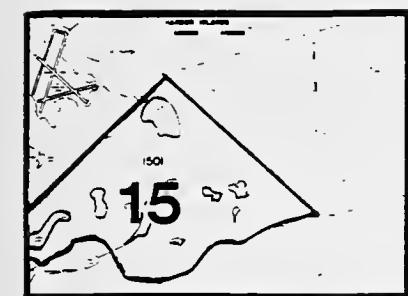
Col.6 - Col. 1 plus Col. 7.

Col.7 - Col. 5 multiplied by 1.026 to accommodate other undercount factors.

Col.8 - Col. 2 as a percent of Col. 7.



II-3A  
CENSUS TRACT DISTRICTS: 1980



0 Brighton/Allston	8 Mission Hill/Roxbury
1 Back Bay/Fenway	9 Dorchester
2 Beacon Hill/West End	10 Neponset/Mattapan
3 Waterfront-No. End	11 Roslindale
4 Charlestown	12 Jamaica Plain
5 East Boston	13 West Roxbury
6 South Boston	14 Hyde Park
7 South End/CBD	15 Harbor Islands *

\* See inset above.





Table 2

CALCULATION OF HOUSEHOLD SIZE UNDERCOUNT FACTOR  
BASED ON 1980 CENSUS PRELIMINARY POPULATION AND HOUSING NUMBERS AND THE  
CENTER FOR SURVEY RESEARCH HOUSEHOLD SURVEY

Census Tract Districts	Preliminary 1980 Census Housing Units	Occupied Housing Units	Preliminary 1980 Census Population			Population In Group Quarters	Population In Households	Persons per Household	Center for Survey Research	Difference (Where CSR Is Higher)	(8) Population Undercount Due to Household Size Factor
			(1)	(2)	(3)						
Allston-Brighton	28,808	27,501	65,000	4,599	60,401	2,20	2,29	0,09	2,475		
Back Bay-Fenway	23,703	21,661	47,000	16,434	30,566	1,41	1,57	0,16	3,466		
Beacon Hill-West End	8,776	8,221	15,000	994	14,006	1,70	1,64	-	-		
Waterfront-North End	6,466	5,852	12,000	750	11,250	1,92	1,64	-	-		
Charlestown	6,166	5,371	13,400	95	13,305	2,48	2,36	-	-		
East Boston	14,465	12,838	32,000	325	31,675	2,47	2,51	0,04	514		
South Boston*	14,015	12,697	30,072	1,382	28,690	2,26	2,48	0,22	2,793		
South End	14,722	13,360	29,400	1,906	27,494	2,06	2,34	0,28	3,741		
Mission Hill-Roxbury	23,313	20,968	62,709	2,101	60,608	2,90	2,64	-	-		
Dorchester	31,497	28,980	70,750	1,386	69,364	2,39	3,25	0,86	24,923		
Neponset-Mattapan	22,710	21,604	61,797	1,244	60,553	2,80	3,36	0,56	12,098		
Roslindale	12,063	11,604	33,287	1,315	31,972	2,76	2,66	-	-		
Jamaica Plain	11,244	10,644	27,790	1,668	26,122	2,45	2,41	-	-		
West Roxbury	10,763	10,589	29,465	640	28,825	2,72	2,59	-	-		
Hyde Park	12,430	11,955	32,448	428	32,020	2,68	2,69	0,01	120		
City of Boston	241,141	223,746	562,118	35,267	526,851	2,35	2,47	0,22	50,130		

\* Includes Harbor Islands.

Sources: Col.1 - U.S. Census Bureau Mailgram of October 2, 1980 provided a total which was 2,316 dwelling units higher than the unofficial working numbers of July 10, 1980. The addition was arbitrarily assigned to Dorchester which appeared to have the highest undercount.

Col.2 - Col. 1 less units reported vacant in July 10, 1980 U.S. Census Bureau report.

Col.3 - U.S. Census Bureau, October 1980.

Col.4 - U.S. Census Bureau report on Boston's D-74 report.

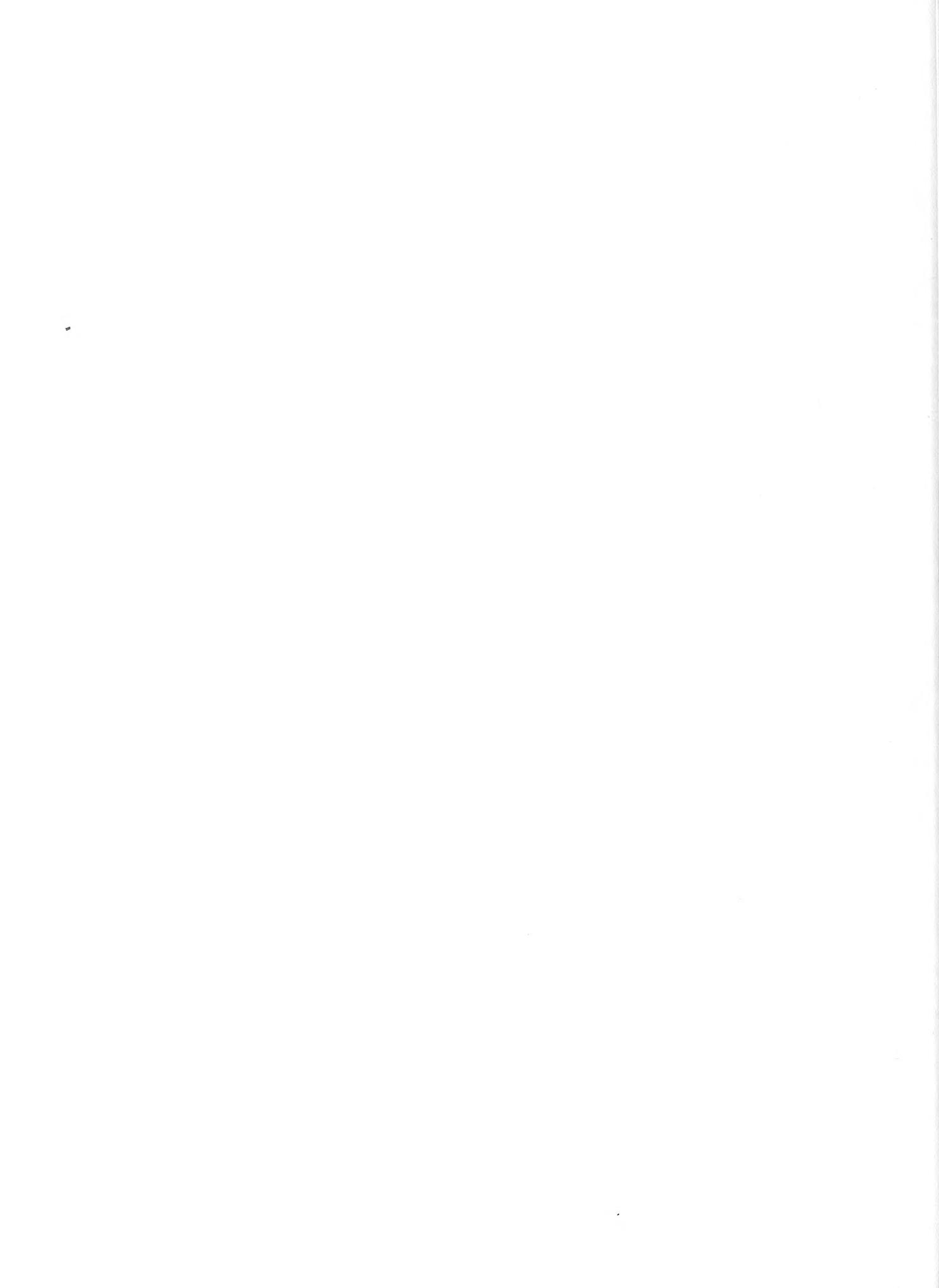
Col.5 - Col. 3 less Col. 4.

Col.6 - Col. 5 divided by Col. 2.

Col.7 - Boston Redevelopment Authority Household Survey conducted by the Center for Survey Research of the University of Massachusetts and the Joint Center for Urban Studies of MIT and Harvard.

Col.8 - Col.7 less Col.6 where CSR is higher.

Col.9 - Col.2 times Col.8.



our D-74 report provided acceptable numbers. On vacant housing, we used the same numbers reported in July, in the absence of newer census information. If we were to assume vacancies less, then the household size would be even smaller. On housing, it was assumed that the housing stock was distributed by census tract districts as reported in July, but the additional 2,316 housing units found by October, making up 1 percent of Boston's reported housing stock, were arbitrarily assigned to Dorchester, the neighborhood with the largest apparent undercount.

A match of the housing stock monitored by the Boston Redevelopment Authority and the census numbers indicate 8,500 dwelling units were missed. See Table 3. An estimated 18,182 people in these dwellings were also missed.

Treating vacant housing as reported in July, and matching the census vacancy rate of 7.3 percent with that of 5.5 percent found by the Center for Survey Research reveals an estimated 4,490 occupied housing units counted vacant. See Table 4. These dwellings are concentrated in neighborhoods of young people (35 percent) and minorities (41 percent). The result is an estimated 11,175 persons missed.



Table 3

## POPULATION IN MISSED HOUSING UNITS

Census Tract Districts	Housing Units	Preliminary 1980 Census Estimate	BRA 1980 Housing Estimate	Missed Housing Units	Vacancy Rates, Center for Survey Research	Occupied Housing Missed	Population In Missed Housing Units	
							Persons per Household, Higher of Census & CSR	Population In Missed Housing Units
Allston-Brighton	28,808	28,800	—	—	2.31%	—	—	—
Back Bay-Fenway	23,703	27,200	3,500	5,03	3,324	1,57	5,219	2,096
Beacon Hill-West End	8,776	10,100	1,300	5.17	1,233	1.70#	—	—
Waterfront-North End	6,466	6,500	—	9.00	—	—	—	—
Charlestown	6,166	6,100	—	18.49	—	—	—	—
East Boston	14,465	14,500	—	9.18	—	—	—	—
South Boston*	14,015	14,100	100	7.40	93	2.48**	231	—
South End	14,722	14,700	—	12.61	—	—	—	—
Mission Hill-Roxbury	23,313	25,000	1,700	4.17	1,629	2.90#	4,724	—
Dorchester	31,497	31,500	—	8.20	—	—	—	—
Neponset-Mattapan	22,710	23,400	700	3.77	660	3.36**	2,218	—
Roslindale	12,063	12,300	200	1.32	197	2.76#	544	—
Jamaica Plain	11,244	11,400	200	4.76	190	2.45#	465	—
West Roxbury	10,763	11,700	1,000	1.29	987	2.72#	2,685	—
Hyde Park	12,430	12,400	—	3.80	—	—	—	—
City of Boston	241,141	249,700	8,500	5.54%	8,313	2.19	18,182	—

\* Includes Harbor Islands

\*\* U.S. Census, see Table 2.

# Center for Survey Research, see Table 2.

Sources: Col.1 - See Table 2, Col. 1.  
 Col.2 - Boston Redevelopment Authority, Local Review Response op. cit.; see Part 1, Table 7. Estimate adjusted to take into account the addition of 2,316 dwelling units in Col. 1.

Col.3 - Ibid.

Col.4 - Center for Survey Research Household Survey, op. cit.

Col.5 - Col. 3 less vacancy rate of Col. 4.

Col.6 - See Table 2, Cols. 6 and 7.

Col.7 - Col. 3 times Col. 6.



Table 4

## POPULATION IN OCCUPIED HOUSING UNITS COUNTED VACANT

Census Tract Districts	Housing Count	Census Vacancy Rates	Census Vacancy Housing	Center for Survey Research Vacancy Rates	Adjusted Vacant Housing	Where Vacancy Rate Is Lower)	Occupied Housing Counted Vacant**			Persons per Occupied Housing Unit (Higher of Census and CSR Rates)
							Center for Survey Research Vacancy Rates	Adjusted Vacant Housing	Where Vacancy Rate Is Lower)	
Allston-Brighton	28,808	4.5%	1,307	2.3%	665	642	2.29***	1,470		
Back Bay-Fenway	23,703	8.6	2,042	5.0	1,192	850	1.57***	1,334		
Beacon Hill-West End	8,776	6.3	555	5.2	454	101	1.70**	172		
Waterfront-North End	6,466	9.5	614	9.0	582	32	1.92**	61		
Charlestown	6,166	12.9	795	18.5	1,140	—	—	—		
East Boston	14,465	11.2	1,627	9.2	1,328	299	2.51***	750		
South Boston*	14,015	9.4	1,317	7.1	1,001	316	2.48***	784		
South End	14,722	9.2	1,362	12.6	1,855	—	—	—		
Mission Hill-Roxbury	23,313	10.5	2,445	4.2	1,972	1,473	2.90**	4,271		
Dorchester	31,497	8.6	2,517	8.2	2,393	124	3.25***	403		
Neponsset-Mattapan	22,710	4.8	1,106	3.8	856	250	3.36***	840		
Roslindale	12,063	3.8	459	1.3	159	300	2.76**	828		
Jamaica Plain	11,244	5.3	600	4.8	535	65	2.45**	159		
West Roxbury	10,763	1.6	174	1.3	139	35	2.72**	95		
Ryde Park	12,430	3.8	475	3.8	472	3	2.69***	8		
City of Boston	241,141	7.3	17,395	5.5	13,743	4,490	2.49	11,175		

\* Includes Harbor Islands

\*\* U.S. Census

\*\*\* Center for Survey Research

Sources: Col.1 - See Table 2, Col. 1.

Cols. 2 &amp; 3 - U.S. Census Bureau Unofficial Working Numbers, July 10, 1980.

Col.4 - Center for Survey Research, op. cit.

Col.5 - Col. 1 times Col. 4.

Col.6 - Col. 3 less Col. 5.

Col.7 - See Table 2, Cols. 6 and 7.

Col.8 - Col. 6 times Col. 7.



## III. SOME OBSERVATIONS ON THE CONFERENCE ON CENSUS UNDERCOUNT

The Conference on Census Undercount, held February 25-26, 1980, with Proceedings issued in July 1980, was an extraordinary event in several dimensions--the open discussion process initiated by the Census Bureau (implementing the mandate of Courtenay Slater, Chief Economist, U.S. Commerce Department), the marshalling of Census Bureau and academic talent and their in-depth focus on the undercount, and the identification of the ways in which the undercount might be adjusted.\* Both the strengths and limitations of the Census Bureau are here demonstrated. The Census Bureau was well aware of the undercount, and had measured it in 1950, 1960, and 1970. In addition, the Census Bureau had added five million persons to the 1970 population count through an imputation process called "substitution-close-out". But the Census Bureau was directionless in identifying a suitable strategy for adjustment, among the many avenues it was studying, because it had developed no theory on the origin of undercount. Consequently, for example, the urging of a number of participants that the Census Bureau establish and announce, before the April 1 Census Day, how it proposed to adjust for undercount, passed by unheeded.

Professor I. Richard Savage, Yale University, commenting on the outstanding work of Census demographers, Jacob S. Siegel, Jeffrey S. Passel, Norfleet W. Rives, Jr., and J. Gregory Robinson, in estimating the 1970 undercount through a systematic following of birth and death statistics, and emigration and immigration, went on to make the following observations. "It is important

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\* U.S. Bureau of the Census, Conference on Census Undercount; Proceedings of the 1980 Conference, Washington, D.C., issued July 1980.



to recall that the vast bulk of SPRR is devoted to assessing the errors in the census; SPRR is not concerned with "adjustments of the census...." The general result of the SPRR analysis is that the authors are working on a problem where predictions-hypotheses cannot be tested.... They have put their developmental effort into estimation of census "error", but they did not address the problem of obtaining a tested method of adjusting the census.... If one is completely negative about the regularity of (social) nature, there can be no science.... It is my impression that this treatment of "error" will not generate a satisfactory methodology....if I were to be involved in a substantial effort to modify the census, my basic approach would be to think of it as a problem in statistical calibration; I would try to use the current census data, I would try to have a broad concept of error, and I would strive for testable predictions".



#### IV. COMMENTS ON CENSUS UNDERCOUNT ADJUSTMENT; BASIS FOR DECISION

The issuance and circulation of the report cited above represents an important milestone. The Census Bureau is about to take the plunge and adjust, but it is still saddled with reservations and hesitation. By and large these have all been resolved in a satisfactory way, but there are some key exceptions--particularly on the use of the adjusted census for apportionment. Now is the time for the Census Bureau to sharpen and implement an adjustment process. The "assumptions" for action should be resolved positively, for the most part.

The Census Bureau has the capability to develop statistically acceptable and programmatically useful procedures for adjustments.

The Census Bureau has the ability to develop a statistical and analytical methodology which will permit adjustment of critical variables (e.g., selected subnational geographic units and selected characteristics) in a timely fashion.

A Census Bureau adjustment procedure would be recognized as equitable, legally acceptable, meeting professional standards, and providing users with more accurate data.

It is the responsibility of the Census Bureau to take an active role in developing methodology and providing adjusted data.

A simple synthetic adjustment procedure would not satisfy the Census Bureau's standards for accuracy. The Census Bureau will be able to produce a series of adjusted census figures that are statistically acceptable for various geographic levels and various characteristics.

Program agencies will require adjusted census information for key demographic characteristics such as age and income.



Given the estimated magnitude of the undocumented-alien population and the fact that the Bureau's policy is to count all residents, it is important to include the development of an estimate of their "true" number as part of the 1980 census evaluation and statistical adjustment program.

The adjusted census numbers should be reported as "the census" and used for apportionment in 1982.

Information from the Post Enumeration Program, the Current Population Survey of 71,000 households, and the Annual Survey of Housing, available for 60 metro areas and 42 central cities, should be used to generate address specific adjustments of household size and vacancy rates for the nation's large cities and metro areas, where the undercount may be concentrated. These adjusted data should then be encapsuled in the imputation process "substitution-close-out" used by the Census Bureau, and included as part of the census count.





UNITED STATES DEPARTMENT OF COMMERCE  
Bureau of the Census  
Washington, D.C. 20233  
OFFICE OF THE DIRECTOR

October 8, 1980

FROM THE DIRECTOR  
BUREAU OF THE CENSUS

Enclosed is a report outlining the basic assumptions related to a decision on whether, when, and how to adjust 1980 census results for undercoverage.

This copy is provided to inform you of the process that we are following in order to arrive at a decision which considers all relevant information. Pending the resolution of the legal action brought by the City of Detroit referred to in the paper, as well as other legal actions, we have decided that it is important to continue this open decisionmaking process. As you will see, the report is structured in terms of critical assumptions, supporting assumptions, and rebuttals to those assumptions.

I am interested in any reactions or comments you may have on particular parts of the report as well as general comments. Any information that you might contribute--either supporting or rebutting--is welcomed as input to the final decision. However, as we are under very tight deadlines for the decision, please submit any comments to me during the month of October.

Sincerely,

VINCENT P. BARABBA

Enclosure



The Speaker's Rooms  
U.S. House of Representatives  
Washington, D.C. 20515

October 15, 1980

Mr. Vincent P. Barabba  
Director of the Census  
U.S. Department of Commerce  
Bureau of the Census  
Washington, D.C. 20233

Dear Mr. Barabba:

Thank you for the recent report pertaining to adjustment for an undercount in the 1980 Census.

The Census preliminary population numbers for Boston, released by the Census Bureau on October 2, indicate a 1980 population of 562,118 for the City, down 78,898 from the 1970 population of 641,016, representing a decline of 12.3%.

As you may be aware, the City of Boston estimates that the population undercount for the City as a whole is almost 80,000, with three quarters concentrated in neighborhoods of minority population and one quarter in neighborhoods of young people.

I have been working very closely with Boston on the 1980 Census to ensure that a complete and accurate count is made. Consequently, I have requested that Mr. Alexander Ganz, Research Director and Official Census Local Review Liaison for the Boston Redevelopment Authority, carefully review the report and forward his suggestions. Mr. Ganz has been outstanding in his work on the Census and I value his comments on this important matter.

Please be assured that every effort will be made to ensure that comment has been submitted by the October 31 deadline.

With every good wish,

Sincerely,

Thomas P. O'Neill, Jr.  
The Speaker

TPO/kp

cc: Honorable Kevin White  
Mr. Alexander Ganz





